

IN THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the Application:

LISTING OF CLAIMS:

1 - 26. (Cancelled)

27. (Currently amended) A method according to claim 2, wherein: In a data communications device having a network address translation data structure, a method for managing network traffic using network address translation, the method comprising the steps of:

in the network address translation data structure, creating a first entry to coordinate a first data flow from a server to a client, and concurrently creating a second entry to coordinate a second data flow from the client to the server;

conveying a data element of the first data flow from the server to the client based on the first entry; and

conveying a data element of the second data flow from the client to the server based on the second entry;

wherein:

the network traffic includes Real-Time Streaming Protocol packets, the data element of the first data flow is a Real-Time Transport Protocol packet, and the data element of the second data flow is a Real-Time Transport Protocol Control Protocol packet;

the Real-Time Transport Protocol (RTP) packet includes a first address and a first port number of the server and an address and a first port number of the client, the first address of the server being locally defined on a first network including a plurality of servers from which the RTP packet is sent to the client;

the Real-Time Transport Control Protocol (RTCP) packet includes the address and a second port number of the client and the second address and a second port number of the server, the second address of the server uniquely identifying the server on a second network over which the RTCP packet travels to reach the server, the second port numbers of the client and server being distinct from the first port numbers of the client and server respectively but having predetermined relationships therewith as established by the RTSP session;

the first and second entries of the network address translation (NAT) data structure are created in response to receipt of the RTP packet, and each entry includes respective first network data and second network data:

the first network data of the first entry includes the first address and the first port number of the server and the address and first port number of the client, and the second network data of the first entry includes the second address and the first port number of the server and the address and the first port number of the client;

the first network data of the second entry includes the address and the second port number of the client and the first address and the second port number of the server, and the second network data of the second entry includes the address and the second port number of the client and the second address and the second port number of the server;

conveying the data element of the first data flow comprises (1) utilizing the first entry of the NAT data structure to translate the first address of the server in the RTP packet to the second address of the server, and (2) forwarding the translated RTP packet to the client; and

conveying the data element of the second data flow comprises (1) utilizing the second entry of the NAT data structure to translate the second address of the server in the RTCP packet to the first address of the server, and (2) forwarding the translated RTCP packet to the server.

28. (Currently amended) A communications device according to claim 6, wherein:
- A data communications device, comprising:
- a network interface which is capable of connecting to a client and a server;
- memory to store a network address translation data structure; and
- a controller coupled to the network interface and the memory, the controller being configured to:
- in the network address translation data structure stored in the memory, create a first entry to coordinate a first data flow from the server to the client, and concurrently create a second entry to coordinate a second data flow from the client to the server,
- based on the first entry, convey a data element of the first data flow from the server to the client through the network interface, and
- based on the second entry, convey a data element of the second data flow from the client to the server through the network interface;
- and wherein:
- the network traffic includes Real-Time Streaming Protocol packets, the data element of the first data flow is a Real-Time Transport Protocol packet, and the data element of the second data flow is a Real-Time Transport Protocol Control Protocol packet;

the Real-Time Transport Protocol (RTP) packet includes a first address and a first port number of the server and an address and a first port number of the client, the first address of the server being locally defined on a first network including a plurality of servers from which the RTP packet is sent to the client;

the Real-Time Transport Control Protocol (RTCP) packet includes the address and a second port number of the client and the second address and a second port number of the server, the second address of the server uniquely identifying the server on a second network over which the RTCP packet travels to reach the server, the second port numbers of the client and server being distinct from the first port numbers of the client and server respectively but having predetermined relationships therewith as established by the RTSP session;

the first and second entries of the network address translation (NAT) data structure are created by the controller in response to receipt of the RTP packet, and each entry includes respective first network data and second network data:

the first network data of the first entry includes the first address and the first port number of the server and the address and first port number of the client, and the second network data of the first entry includes the second address and the first port number of the server and the address and the first port number of the client;

the first network data of the second entry includes the address and the second port number of the client and the first address and the second port number of the server, and the second network data of the second entry includes the address and the second port number of the client and the second address and the second port number of the server;

the controller is operative when conveying the data element of the first data flow to (1) utilize the first entry of the NAT data structure to translate the first address of the server in the RTP packet to the second address of the server, and (2) forward the translated RTP packet to the client; and

the controller is operative when conveying the data element of the second data flow to (1) utilize the second entry of the NAT data structure to translate the second address of the server in the RTCP packet to the first address of the server, and (2) forward the translated RTCP packet to the server.

29. (Currently amended) A method according to claim 13, wherein:In a data communications device having a network address translation data structure, a method for managing network traffic using network address translation, the method comprising the steps of:

conveying a data element of a first data flow from a server to a client and concurrently creating, in the network address translation data structure, a first entry to coordinate the first data flow from the server to the client;

receiving a command from the server and creating, in the network address translation data structure, a second entry to coordinate a second data flow from the client to the server in response to the command; and

conveying a data element of the second data flow from the client to the server based on the second entry;

wherein:

the network traffic includes Real-Time Streaming Protocol packets, the data element of the first data flow is a Real-Time Transport Protocol packet, and the data element of the second data flow is a Real-Time Transport Protocol Control Protocol packet;

the Real-Time Transport Protocol (RTP) packet includes a first address and a first port number of the server and an address and a first port number of the client, the first address of the server being locally defined on a first network including a plurality of servers from which the RTP packet is sent to the client;

the Real-Time Transport Control Protocol (RTCP) packet includes the address and a second port number of the client and the second address and a second port number of the server, the second address of the server uniquely identifying the server on a second network over which the RTCP packet travels to reach the server, the second port numbers of the client and server being distinct from the first port numbers of the client and server respectively but having predetermined relationships therewith as established by the RTSP session;

the first entry of the network address translation (NAT) data structure is created in response to receipt of the RTP packet;

the second entry of the NAT data structure is created in response to a command from the server prior to the generation of the RTCP packet;

each entry of the NAT data structure includes respective first network data and second network data:

the first network data of the first entry includes the first address and the first port number of the server and the address and first port number of the client, and the second network data of the first entry includes the second address and the first port number of the server and the address and the first port number of the client;

the first network data of the second entry includes the address and the second port number of the client and the first address and the second port number of the server, and the second network data of the second entry includes the address and the

second port number of the client and the second address and the second port number of the server;

conveying the data element of the first data flow comprises (1) utilizing the first entry of the NAT data structure to translate the first address of the server in the RTP packet to the second address of the server, and (2) forwarding the translated RTP packet to the client; and

conveying the data element of the second data flow comprises (1) utilizing the second entry of the NAT data structure to translate the second address of the server in the RTCP packet to the first address of the server, and (2) forwarding the translated RTCP packet to the server.

30. (Currently amended) A communications device according to claim 17, wherein:A data communications device, comprising
a network interface which is capable of connecting to a client and a server;
memory to store a network address translation data structure; and
a controller coupled to the network interface and the memory, the controller being configured to:
convey a data element of a first data flow from a server to a client and concurrently create, in the network address translation data structure, a first entry to coordinate the first data flow from the server to the client;
receive a command from the server and create, in the network address translation data structure, a second entry to coordinate a second data flow from the client to the server in response to the command; and
convey a data element of the second data flow from the client to the server based on the second entry.

and wherein:

the network traffic includes Real-Time Streaming Protocol packets, wherein the data element of the first data flow is a Real-Time Transport Protocol packet, and wherein the data element of the second data flow is a Real-Time Transport Protocol Control Protocol packet;

the Real-Time Transport Protocol (RTP) packet includes a first address and a first port number of the server and an address and a first port number of the client, the first address of the server being locally defined on a first network including a plurality of servers from which the RTP packet is sent to the client;

the Real-Time Transport Control Protocol (RTCP) packet includes the address and a second port number of the client and the second address and a second port number of the server, the second address of the server uniquely identifying the server on a second network over which the RTCP packet travels to reach the server, the second port numbers of the client and server being distinct from the first port numbers of the client and server respectively but having predetermined relationships therewith as established by the RTSP session;

the controller is operative to create the first entry of the network address translation (NAT) data structure in response to receipt of the RTP packet;

the controller is operative to create the second entry of the NAT data structure in response to receipt of a command from the server prior to the generation of the RTCP packet;

each entry of the NAT data structure includes respective first network data and second network data;

the first network data of the first entry includes the first address and the first port number of the server and the address and

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first port number of the client, and the second network data of the first entry includes the second address and the first port number of the server and the address and the first port number of the client;

the first network data of the second entry includes the address and the second port number of the client and the first address and the second port number of the server, and the second network data of the second entry includes the address and the second port number of the client and the second address and the second port number of the server;

the controller is operative when conveying the data element of the first data flow to (1) utilize the first entry of the NAT data structure to translate the first address of the server in the RTP packet to the second address of the server, and (2) forward the translated RTP packet to the client; and

the controller is operative when conveying the data element of the second data flow to (1) utilize the second entry of the NAT data structure to translate the second address of the server in the RTCP packet to the first address of the server, and (2) forward the translated RTCP packet to the server.